

## Lake Amadeus and Lake Neale

### Location and Description

Lake Amadeus and Lake Neale are located about 275 km south-west of Alice Springs, and are part of a chain of saline lakes that extends 500 km from Lake Hopkins in Western Australia to the Finke River in the southern NT. The lakes are inundated episodically but Lake Amadeus is a major discharge area for the central Australian groundwater system and contains several springs. The lakes comprise extensive salt pans and are surrounded by numerous smaller lakes. The lake beds are mostly bare with fringing areas of samphire.

### Tenure and Land Use

The lakes are predominantly Aboriginal freehold land held by three Aboriginal land trusts (Petermann, Katiti and Haasts Bluff). A small portion on the western end of the Site is pastoral leasehold land (Curtin Springs). The main land use within the Site is Indigenous.



### Significance Rating

National Significance

### Ecological Values

Lake Amadeus is the largest brine lake that is entirely within the Northern Territory, and it supports several reliable springs. Six threatened species are recorded from the Site including one plant (quandong), three birds (Emu, Malleefowl and Princess Parrot), and two mammals (Brush-tailed Mulgara and Sandhill Dunnart). Islands within Lake Amadeus and hollow-bearing trees are likely to be significant for nesting birds during periods of inundation.

### Management Issues

The increase in the number of camels is of greatest concern. Otherwise, the ecological values of this Site are poorly known, as are the processes affecting those values.

### Condition

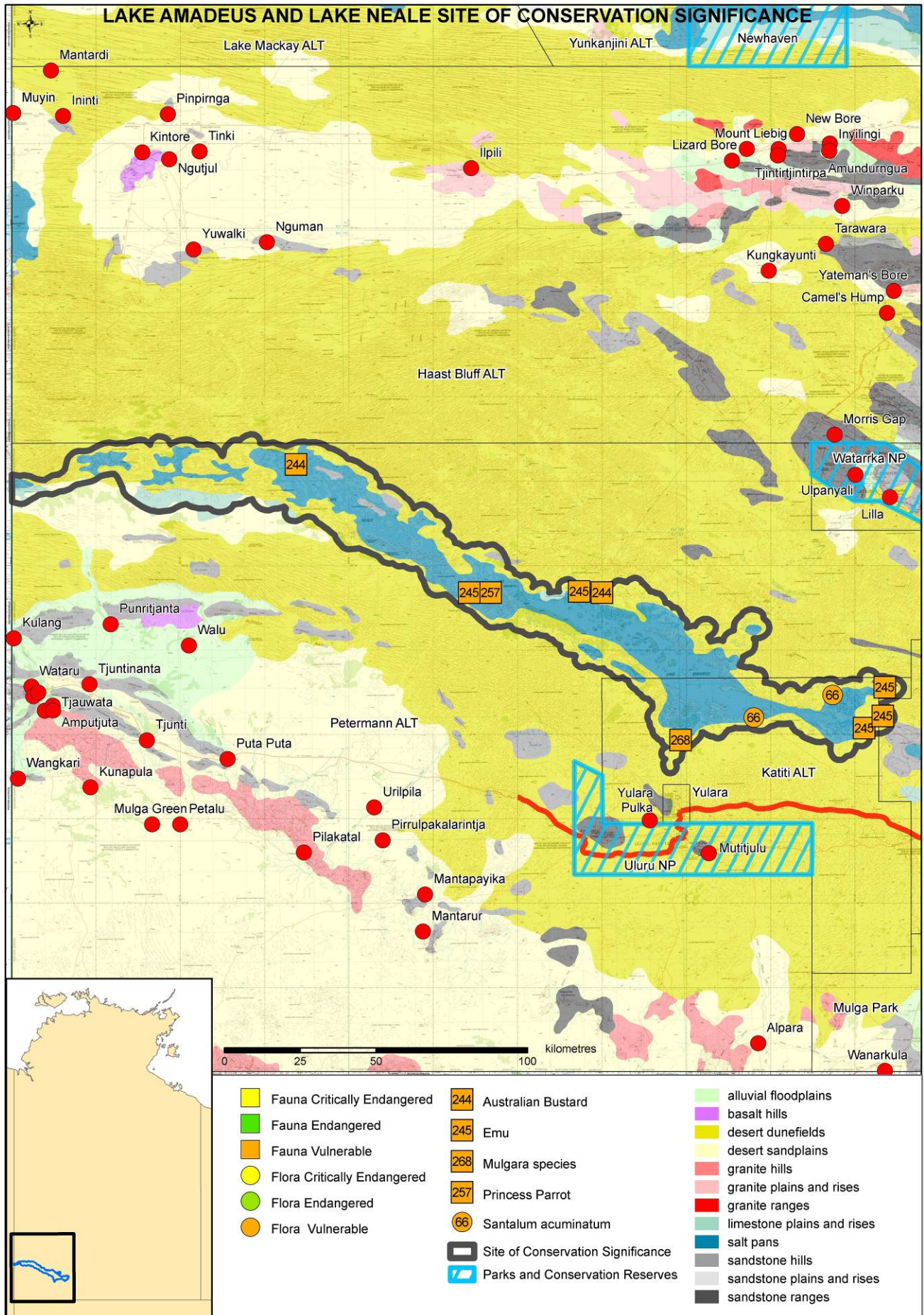
No information located.

### Current Conservation Initiatives

No information located.



LAKE AMADEUS AND LAKE NEALE - SITE OF CONSERVATION SIGNIFICANCE



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<b>LOCATION</b>	<b>SOCS Number</b>	59 (NT Parks and Conservation Masterplan Map Number 93)
	<b>Latitude/Longitude</b>	24° 34' South, 130° 27' East (at centre)
	<b>Bioregion</b>	Great Sandy Desert (97%) Finke (3%)
	<b>Description</b>	<p>The Lake Amadeus and Lake Neale site is delineated based on wetland mapping by Duguid <i>et al.</i> (2005) and the Lake Amadeus and Lake Neale Sites of Botanical Significance identified by White <i>et al.</i> (2000). The two separate areas are joined to make one site, and a 2 km buffer applied. The site encompasses an area of 6200 km<sup>2</sup>.</p> <p>Samphire dominated by <i>Halosarcia halocnemoides</i> fringes the bed of Lake Amadeus. Tussock grasses and forbs are a significant part of this vegetation community and some <i>Melaleuca glomerata</i> occurs at the margins of the samphire (DIWA).</p> <p>The Karinga Creek Paleodrainage System is part of the chain of lakes that extend from Lake Hopkins in Western Australia to the Finke River, including Lakes Amadeus and Neale, and is also identified as a site of high conservation significance in the NT.</p>
<b>THREATENED SPECIES</b>	<b>Significance Rating</b>	<b>National Significance</b>
	<b>Threatened plants and animals</b> (Listings at National/NT level <b>CR</b> - Critically Endangered, <b>EN</b> - Endangered, <b>VU</b> - Vulnerable, <b>NT</b> - Near Threatened, <b>LC</b> - Least Concern, <b>DD</b> - Data Deficient)	<p>Six threatened species are reported from this site.</p> <p><b>Plants</b></p> <ul style="list-style-type: none"> <li>▪ Quandong <i>Santalum acuminatum</i> (-/VU)</li> </ul> <p><b>Vertebrates</b></p> <ul style="list-style-type: none"> <li>▪ Emu <i>Ardeotis australis</i> (-/VU)</li> <li>▪ Mallee Fowl <i>Leipoa ocellata</i> (VU/CR)</li> <li>▪ Princess Parrot <i>Polytelis alexandrae</i> (VU/VU)</li> <li>▪ Brush-tailed Mulgara <i>Dasyercus blythi</i> (VU/VU)</li> <li>▪ Sandhill Dunnart <i>Sminthopsis psammophila</i> (EN/DD)</li> </ul> <p>The type location for the Sandhill Dunnart is within this site (south of Kurtitina).</p> <p>Although no surveys have been undertaken to date, the Southern Marsupial Mole (EN/VU) is also highly likely to occur within the site.</p> <p>Two threatened species reported from the site are believed to now be locally extinct (Bilby <i>Macrotis lagotis</i>, and Mala <i>Lagorchestes hirsutus</i>).</p>
<b>ENDEMIC SPECIES</b>	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Notes</b>	<b>Other:</b> One plant species ( <i>Acacia prairii</i> ) recorded from this site is restricted to the Great Sandy Desert bioregion within the NT but also occurs in other states.
<b>WILDLIFE AGGREGATIONS</b>	<b>Significance Rating</b>	<b>Regional Significance</b>
	<b>Marine turtles</b>	Not applicable
	<b>Seabirds</b>	None known
	<b>Waterbirds</b>	Large aggregations of waterbirds are not known from this site but four species are reported from Lake Amadeus including Grey Teal, Pink-eared Duck, White-eyed Duck and Silver Gull (Yeatman 1992).
	<b>Shorebirds</b>	A number of shorebird species are reported from Lake Amadeus including Red-capped Plover, Black-fronted Plover, Banded Stilt and Black-winged Stilt (Yeatman 1992).
	<b>Other aggregations</b>	None known
<b>WETLANDS</b>	<b>Significance Rating</b>	<b>National Significance</b>
	<b>Ramsar criteria met</b>	Lake Amadeus and Lake Neale have not been assessed against Ramsar criteria to date.
	<b>DIWA criteria met</b>	Lake Amadeus (NT005) is listed on the Directory of Important Wetlands in Australia (DIWA) and is assessed as meeting criteria 1 and including DIWA wetland types B8.
	<b>Notes</b>	<p>This site has been nominated as a national High Conservation Value Aquatic Ecosystem (the finalised list of HCVAE will replace the DIWA list).</p> <p>Lake Amadeus is inundated primarily from direct rainfall about once every 10-20 years. The lake is shallow (10-20 cm) and flood waters remain only temporarily due to seepage and evaporation (A. Duguid, NRETAS, pers. comm.).</p> <p>Surface springs in the bed of Lake Amadeus have relatively low salinities compared to surrounding hypersaline brines, and one spring at the eastern end of the lake forms a mound spring which is several metres high and encrusted with carbonate (Jacobson 1996). The lakes are part of the Central Australian Groundwater Discharge Zone (Jacobson 1996).</p> <p>Very little information is known about Lake Neale other than it being a large saline lake with presumed value for wetland birds.</p>
	<b>Rivers</b>	None known



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FLORA	<b>Significance Rating</b>	<b>Not Significant</b>
	<b>Notes</b>	<b>Restricted range species:</b> Five species reported from the site have restricted ranges within the NT ( <i>Daviesia eremaea</i> , <i>Eucalyptus gongylocarpa</i> , <i>Sclerolaena symoniana</i> , <i>Sida</i> sp. <i>Watarrka</i> and <i>Swainsona cyclocarpa</i> ).
OTHER ENVIRONMENTAL VALUES		<p>Lake Amadeus is listed on the Register of the National Estate for natural values (Australian Heritage Council).</p> <p>Lake Amadeus is identified as a site of significant refugia for biological diversity in semi-arid Australia (Morton <i>et al.</i> 1995).</p> <p>Lake Amadeus and Lake Neale are identified as significant for biodiversity conservation by Duguid <i>et al.</i> (2005).</p> <p>Lake Amadeus and Lake Neale are identified as Sites of Botanical Significance in White <i>et al.</i> (2000).</p> <p>The site supports extensive areas of marble gum <i>Eucalyptus gongylocarpa</i> open woodland that are likely to be important habitat for hollow-nesting birds and roosting bats.</p> <p>Islands within Lake Amadeus may provide protected breeding sites for waterbirds during periods of deep and long-lasting flooding (Duguid 2005).</p>
MANAGEMENT ISSUES		<p><b>Fire:</b> In the period 1997-2005, most parts of the site (93%) were burnt fewer than two times and no parts of the site were burnt more than four times.</p> <p><b>Feral animals:</b> Camel numbers within the site are increasing. The threatened Quandong (<i>S. acuminatum</i>) is a favourite food of camels, and increasing numbers of camels are having a significant impact on quandong populations (P. and A. Severin, Curtin Springs, pers. comm.).</p> <p><b>Weeds and invasive exotic plants:</b> Couch grass <i>Cynodon dactylon</i> is likely to be spreading in the site.</p> <p><b>Other:</b> The site is very poorly surveyed. The Horn Expedition crossed Lake Amadeus in 1894 and the next (and most recent) systematic biological survey was carried out in 1989 (Yeatman 1992).</p>
MANAGEMENT INFORMATION	<b>NRM groups</b>	No information located.
	<b>Protected areas</b>	The site is not included within the formal network of protected areas within the NT.
	<b>Current management plans</b>	<p><b>Site-specific plans:</b> No information located.</p> <p><b>National recovery plans for threatened species:</b> Malleefowl (Benshemesh 2000); Brush-tailed Mulgara (SA Department of the Environment and Heritage in prep.).</p> <p><b>Other management plans:</b> Australian Weeds Strategy (NRMMC 2007).</p>
	<b>Monitoring programs and research projects</b>	Across the NT, fire is mapped continuously under the North Australia Fire Information Project <a href="http://www.firenorth.org.au/nafi/app/init.jsp">http://www.firenorth.org.au/nafi/app/init.jsp</a>
	<b>Management recommendations</b>	<p>Establish a survey program as part of the Bioregion Natural Resource Assessment to assess conservation and cultural values in the site (NRETA 2005).</p> <p>Develop appropriate conservation management programs including inclusion of the site in the proposed Greater Central Australian National Park (NRETA 2005).</p> <p>Broadscale heavy control of camels is needed across tenures and jurisdictions in Central Australia (P. and A. Severin, Curtin Springs, pers. comm.).</p> <p>Provide financial and technical support to Indigenous landholders to develop a ranger group, for example in Docker River, to undertake conservation management programs.</p>
KEY REFERENCES	<b>Papers and reports</b>	<p>Duguid, A., Barnetson, J., Clifford, B., Pavey, C., Albrecht, D., Risler, J. and McNellie, M. (2005). <i>Wetlands in the arid Northern Territory. A report to the Australian Government Department of the Environment and Heritage on the inventory and significance of wetlands in the arid NT.</i> Northern Territory Government Department of Natural Resources, Environment and the Arts. Alice Springs.</p> <p>Yeatman, E. M. (1992). Fauna survey of the Lake Amadeus area, central Australia. <i>South Australian Naturalist</i> 66: 64-81.</p>
	<b>Contributors</b>	<p>Chris Pavey, Biodiversity Conservation, NRETAS, Alice Springs.</p> <p>Angus Duguid, Biodiversity Conservation, NRETAS, Alice Springs.</p> <p>David Albrecht, Alice Springs Herbarium, NRETAS, Alice Springs.</p>